UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,612	12/26/2006	Stewart Kessel	S9025.0151	3558

32172 7590 08/17/2009

DICKSTEIN SHAPIRO LLP
1633 Broadway
NEW YORK, NY 10019

EXAMINER	
FRANK, NOAH S	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
08/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,612	KESSEL ET AL.	
	Examiner	Art Unit	
	NOAH FRANK	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10, 12-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batting et al. (US 2003/0119941) in view of Slifkin et al. (WO 93/24934).

Considering Claim 1-4, 12, 16-17, 19-21, 25-26: Batting et al. teaches radiation curable inks comprising a photopolymerizable water-soluble oligomer or prepolymer (¶0024), an ethylenically unsaturated (photopolymerizable) water-soluble monomer (¶0025), an ethylenically unsaturated (photopolymerizable) water-insoluble monomer (¶0028), water (¶0030), and 1-5% photoinitiator (¶0026).

Batting et al. does not teach the ink comprising a particulate electrically conductive material. However, Slifkin et al. teaches inks having electrically conductive particles, such as nickel coated with gold or silver (Abs). Slifkin teaches the ink comprising 88.2% silver coated nickel spheres (4:15-25). The ratio of conductive spheres to polymerizable monomers is 9.59:1 (4:15-25). Batting and Slifkin are analogous art because they are from the same field of endeavor, namely UV curable inks. At the time of the invention a person of ordinary skill in the art would have found it

obvious to have used electrically conductive particles, as taught by Slifkin, in the invention of Batting, in order to make the ink conductive, thereby making the inks useful for screen printing interconnective patterns suitable for electronic circuits (Abs of Slifkin).

With regard to the claimed resistivity, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 10^{-2} ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Considering Claims 5-6: Batting et al. teaches the water-soluble oligomer or prepolymer being a water-dispersible urethane, polyester, or epoxy containing acrylate ester residues (¶0024).

Considering Claims 7-8: Batting et al. teaches the ethylenically unsaturated (photopolymerizable) water-soluble monomer being an ester of acrylic or methacrylic acid with polyethylene glycol (¶0025).

Considering Claims 9-10: Batting et al. teaches the ethylenically unsaturated (photopolymerizable) water-insoluble monomer being an acrylate or methacrylate ester

of a mono, di, tri, tetra, penta, or hexahydric alcohol having a molecular weight less than 300 (¶0028).

Considering Claim 13: Batting teaches the photopolymerizable oligomer present in an amount of between 5 and 50% (¶0024).

Considering Claim 14: Batting teaches the ethylenically unsaturated water-soluble monomer present between 3 and 50% (¶0025).

Considering Claim 15: Batting teaches the ethylenically unsatured water-insoluble monomer present between 0 and 50% (¶0028).

Considering Claim18: Batting in view of Slifkin does not teach a ratio of conductive material to polymerisable compounds of less than 6:1. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. MPEP 2144.05. The resistivity of the ink may be varied according to the amount of conductive material. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

Considering Claims 22-23: Batting teaches water present at 0 to 20% (¶0023).

Considering Claims 24, 29: Batting teaches the photopolymerizable oligomer present in an amount of between 5 and 50% (¶0024), the ethylenically unsaturated water-soluble monomer present between 3 and 50% (¶0025), the ethylenically unsatured water-insoluble monomer present between 0 and 50% (¶0028), the

photoinitiator present between 1 and 5% (¶0026), and water present at 0 to 20% (¶0023).

Considering Claims 27-28: Batting et al. teaches applying the inks to substrate followed by curing via ultra-violet light (¶0033).

Considering Claim 30: Batting in view of Slifkin does not teach a ratio of conductive material to polymerisable compounds of less than 6:1. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. MPEP 2144.05. The resistivity of the ink may be varied according to the amount of conductive material. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney,* 205 USPQ 215.

Response to Arguments

Applicant's arguments filed 4/20/09 have been fully considered but they are not persuasive.

In response to applicant's arguments regarding the combination of Batting and Slifkin, while Batting and Slifkin are from different areas of UV curable inks, they both are indeed UV curable inks. This field is indeed very broad, and there is no explicit teaching in Slifkin to incorporate his conductive pigment into Batting, but this does not make the rejection impermissible. Slifkin, taken simply, teaches that conductive

pigments used in UV curable inks make the inks conductive and are therefore suitable for screen printing interconnective patterns suitable for electronic circuits. The skilled artisan, reading Batting and Slifkin, would be motivated to use the pigment of Slifkin in the ink of Batting, in order to make a conductive ink that had the desired properties of Batting (elasticity, flexibility), with the desired low resistance taught by Slifkin. This is not a hindsight reconstruction, as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's arguments that neither of the references discloses the composite, it is the combination which discloses the composite, and which would have the inherent properties.

In response to applicant's arguments regarding post-cure, if evidence was shown demonstrating that the claimed composition results in an unexpectedly low resistivity without a post cure treatment, they might be persuasive.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NOAH FRANK whose telephone number is (571)270-3667. The examiner can normally be reached on M-F 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

NF
8-6-09